



**GOVERNMENT of PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD**



Air Quality Area

**STATEMENT OF BASIS
Title V Initial Permit
AES Puerto Rico Cogeneration Plant
PFE-TV-4911-30-0703-1130**

The Puerto Rico Environmental Quality Board (EQB) is issuing a Title V permit pursuant to 40 CFR Part 70 and Part VI of the Regulations for the Control of Atmospheric Pollution (RCAP) for **AES Puerto Rico Cogeneration Plant** (AESPR). AESPR is located in Road #3 km. 142, Jobos Ward in Guayama, Puerto Rico. EQB received an initial Title V permit application from AESPR on July 16, 2003. On October 23, 2003, the Air Quality Area (AQA) acknowledged that the application was complete.

On November 3, 2004, AESPR submitted an amendment to the initial application to incorporate changes in the final design of the facility, approved in the construction permit PFE-30-0896-I-II-C, and in their Prevention of Significant Deterioration (PSD) permit revision approved on August 10, 2004. Furthermore, AESPR submitted another amendment to the application to incorporate additional information requested by the AQA. The application submitted on April 18, 2006 was acknowledged complete on October 6, 2006.

AESPR is an electric cogeneration plant that produces approximately 454 MW of net electricity, which is sold to the Puerto Rico Electric Power Authority (PREPA). Its main emission units consist of two bituminous coal-fired circulating fluidized bed boilers. This facility is a major source of atmospheric pollutants because it has the potential to emit more than 100 tons per year of particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x) and carbon monoxide (CO), which are criteria atmospheric pollutants. Also the facility is a major source for hazardous air pollutant because it has the potential to emit more than 10 ton/yr of hydrochloric acid (HCl) and more than 25 tons/yr of a combination of Hazardous Air Pollutants (HAPs). AESPR is required to obtain a Title V operation permit because it is a major source for criteria and hazardous air pollutants.

The emission limits authorized under this permit are mentioned below. The source shall certify annually that its actual emissions do not exceed the emission limits.

| Criteria Pollutant | Emission Limit (tons /year) |
|---------------------------|--|
| PM ₁₀ | 621.92 |
| SO ₂ | 451.68 |
| NO _x | 2051.39 |
| CO | 2044.19 |
| VOC | 98.04 |
| Pb | 0.09 |

| Hazardous Air Pollutant | Emission Limit (tons/year) |
|--------------------------------|---------------------------------------|
| Antimony | 0.335 |
| Arsenic | 0.075 |
| Beryllium | 0.037 |
| Cadmium | 0.148 |
| Hexavalent Chromium | 0.016 |
| Cobalt | 0.094 |
| Manganese | 1.83 |
| Mercury | 0.368 |
| Selenium | 1.30 |
| Hydrochloric Acid | 91.90 |
| Nickel | 0.205 |
| Hydrogen Cyanide | 3.69 |
| Total HAPs | 99.998 |

| Other Regulated Pollutants | Emission Limits (tons /year) |
|---------------------------------------|---|
| Fluorides | 9.80 |
| Sulfuric Acid Mist | 49.87 |

According to EQB's resolution RI-06-02¹, for the annual certification, the emission calculation shall be based on the permittee's actual emissions, although calculation based on the facility's permissible emissions will be accepted. If AESPR decides to make the calculations based on permissible emissions, AESPR shall pay the same charge per ton as the facilities that decide to do the calculations based on actual emissions.

A summary of the emission units, the applicable requirements and the rationale for these requirements are provided below.

Coal fired circulating fluidized bed (CFB) boilers (EU-1 and EU-2): The boilers have a combined maximum heat input capacity of 4,922.7 MMBtu/hr. Since the facility is PSD affected, they employ Best Achievable Control Technology (BACT) to control emissions from the boilers. They both burn low sulfur coal and use No. 2 oil as a startup fuel. Emissions are controlled through

¹ EQB resolution payment procedure of Title V Operation Fees and Charges for Title V Renewal Permits (*Procedimiento de Pago de los Cargos de Operación de Título V y Cargos por Renovación de Permiso Título V*) issued on March 20, 2006.

the use of the CFB boiler and scrubber designs with limestone and lime injection respectively (for SO₂ control), an electrostatic precipitator (for PM and PM₁₀), and a selective non-catalytic reduction system (for NO_x). The permit contains emissions limitations for all the regulated criteria pollutants emitted from the CFB boilers. The CFB boilers are equipped with Continuous Monitoring Systems (CMS) to monitor NO_x, CO, SO₂, and opacity in each of the two flues of the CFB exhaust stack. In addition, the boilers were tested between 2002 and 2003 to demonstrate compliance with these emissions limitations.

The facility also includes a Limestone Dryer (EU-3) and a Cooling Tower (EU-4). They also employ BACT to control emissions from these units. All the processing equipment from crushing and drying the limestone is completely sealed and located within a building, which is equipped with two fabric filters. The cooling tower uses drift eliminators to control cooling tower drift.

Other emission units include lime, limestone, ash and aggregate storage, and handling operations (including conveyors, storage facilities and transportation of materials), emergency equipment (fire pump, diesel electric generator, and an emergency boiler feed pump) and 5 fuel storage tanks. All these emission units have emission limits that come from the PSD permit, which were included in the construction permit (PFE-30-0896-0860-I-II-C) and in the Title V permit. AESPR uses emission control techniques such as, but not limited to wetting, enclosed operations, among others, to control particulates emissions at the facility.

The following table summarizes the applicability² of AESPR with regards to the principal air pollution regulatory programs:

| Regulatory Program | Applicability |
|------------------------------------|----------------------|
| RCAP Rules 403, 404, 406, 407, 410 | Yes |
| PSD (40 CFR Part 52) | Yes |
| NSPS (40 CFR Part 60 Subpart Da) | Yes |
| NSPS (40 CFR Part 60 Subpart Y) | Yes |
| NSPS (40 CFR Part 60 Subpart OOO) | Yes |
| NSPS (40 CFR Part 60 Subpart IIII) | Yes |
| NESHAP (40 CFR Part 61) | No |

² Is important to mention that not all of the permit conditions need to be explained in this document, because the legal and factual bases for the conditions are self-evident as stated in the Title V Operating Permit. This means, that all the applicable requirements are cited in the Title V permit with a reference to the requirement. For example: if the restriction came from a construction permit, the condition will cite the construction permit number, if it came from the regulation it will cite the RCAP specific rule, and if the restriction came from a federal standard, the condition will cite the federal standard or regulation. If the restriction came from the emissions calculation and a cumulative increase, the condition will establish that. Also, state only requirements are clearly identified.

| Regulatory Program | Applicability |
|---|----------------------|
| NESHAP (40 CFR Part 63 Subpart ZZZZ) | Yes |
| CAM Rule (40 CFR Part 64) | No |
| RMP (40 CFR Part 68) | Yes |
| Title V (40 CFR Part 70) and RCAP Part VI | Yes |

The boilers are affected by the New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units for which construction is commenced after September 18, 1978 (40 CFR Part 60 Subpart Da), because they are considered an electric utility steam generating unit (as defined in §60.41Da of the 40 CFR) and are capable of combusting more than 250 MMBtu/hr heat input of fossil fuel. AESPR shall also comply with the Standards of Performance for Coal Preparation Plants (40 CFR Part 60 Subpart Y) for the coal handling operations because they process more than 200 tons of coal per day, and the Standards of Performance for Non-Metallic Mineral Processing Plants (40 CFR Part 60, Subpart OOO) for limestone processing (they are not exempt by §60.670(c) of the 40 CFR). About the internal combustion engines, the emergency boiler feedwater pump (EU-9) shall comply with the emission limitations in Table 2c of Subpart ZZZZ of the 40 CFR Part 63 applicable to the source because it is an existing stationary reciprocating internal combustion engine (RICE) with a site rating equal to or less than 500 brake hp located at a major source of HAP emissions. The fire pump was replaced, therefore it must comply with the requirements of the 40 CFR Part 63 Subpart ZZZZ (RICE) by complying with the requirements of the 40 CFR Part 60 Subpart IIII, for compression ignition engines. According to the §63.6590(b)(3) of the 40 CFR, the emergency generator (EU-7) do not have to meet the requirements of subpart ZZZZ and subpart A of Part 63 of the 40 CFR, including initial notification requirements.

The requirements included in the permit satisfy compliance with the federal regulations and the PSD permit. AESPR implemented a Risk Management Program because it exceeds the threshold quantity for chlorine. The Title V permit includes conditions pursuant to this regulation.

The following requirements are not applicable:

- 40 CFR Part 60 Subpart Kb (EU-5) – Not applicable because the tank has a capacity greater than or equal to 151 m³, and stores a liquid with a maximum true vapor pressure less than 3.5 kPa.
- AESPR is not subject to CAM regulations (40 CFR Part 64) because according to §64.2(b) of the 40 CFR, the requirements of this subpart shall not apply to emissions limitations or standards proposed by the Administrator after November 15, 1990, pursuant to section 111 or 112 of the Act (boilers are subject to 40 CFR Part 60 Subpart Dc, under section 111 of the Act).
- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (RICE) – Not applicable to the units EU-7 and EU-9 because the engines were not constructed, modified or reconstructed after July 11, 2005.

- 40 CFR Part 63 Subpart Q, National Emission Standards for Hazardous Air Pollutants for Industrial Cooling Towers – Does not apply to the facility because the cooling tower is not operated with chromium based water treatment chemicals.
- 40 CFR Part 63 Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters – Electric utility steam generating units (EUSGU's, Boilers 1 and 2) as defined in §63.7575 of the 40 CFR, including a unit covered by 40 CFR Part 60 Subpart Da, are not subject to this subpart. The rule was vacated and remanded by the Court of Appeals for the District of Columbia Circuit on June 8, 2007. A revised rule was proposed on June 4, 2010. As proposed, a EUSGU is still not subject to the regulation.
- 40 CFR Part 82 Subpart B - Not applicable because AESPR does not perform reparations to motor vehicles air conditioners involving ozone-depleting refrigerants (or regulated substitute substance).
- 40 CFR Part 82 Subpart E – Does not apply because AESPR does not transport, store, sell or produce ozone-depleting Class I or Class II substances with the intention of introducing them to interstate commerce.

Applicability of AESPR with the Clean Air Mercury Rule, 40 CFR §60.45a (Standard for Mercury) and 40 CFR Part 60 Subpart HHHH - On February 8, 2008, the United States Court of Appeals for the District of Columbia Circuit, vacated the rule. According to their website, EPA intends to propose air toxics standards for coal- and oil-fired electric generating units by March 10, 2011 and finalize a rule by November 16, 2011. Once the rule is final, then an applicability determination with the rule will be necessary.

All the monitoring, record keeping, and reporting provisions are applicable pursuant to Rule 603 of the RCAP that requires that these elements shall be included in the Title V permit issued.

As established in Appendix B of the RCAP, AES provided a list of insignificant activities because of size or production rate, which includes storage tanks, urea storage and storage silos. This list was provided for a better understanding of AESPR's operation and layout.

EQB found that the AES Puerto Rico Cogeneration Plant Title V Permit (owned by AES Puerto Rico, L.P.) satisfies the requirements of Part VI of the RCAP.

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